In the Claims:

1. (Currently Amended) A method for hierarchical scheduling of prioritized messages comprising:

at a first level,

placing messages of a traffic type based on a specified criteria for the traffic type onto a message queue for the traffic type, wherein there are multiple traffic types and multiple message queues for the multiple traffic ~~types;~~ types located within one of a plurality of traffic queues;

selecting from the plurality of traffic queues a message from one of the message queues based on a priority assigned to each traffic type;

providing the selected message to an interface;

at a second level,

reading the selected message from the interface;

placing the read message into one of a plurality of priority queues; and

selecting a message from one of the plurality of priority queues for transmission when a transmit opportunity is available.

2. (Previously Presented) The method of claim 1, wherein for each traffic type, there are multiple message streams, and wherein messages from different message streams of each traffic type are placed in the message queue for that traffic type.

3. (Previously Presented) The method of claim 2, wherein for each traffic type, messages from the different message streams for that traffic type are placed in the message queue for that traffic type in a first-come first-served (FIFO) order.

4. (Previously Presented) The method of claim 2, wherein for each traffic type, messages from the different message streams for that traffic type are placed in the message queue for that traffic type based on a weighing of the different message streams for that traffic type.

5. (Original) The method of claim 1, wherein the message selected in the first selecting is the message at a head of a message queue for a traffic type with the highest priority.

6. (Original) The method of claim 1, wherein the message selected in the second selecting is the message at a head of a message queue for a traffic type with the highest priority that has a granted transmission opportunity.

7. (Original) The method of claim 1, wherein the interface is a shared memory, and wherein the providing comprises writing the selected message to the shared memory.

8. (Original) The method of claim 7, wherein the reading comprises retrieving the selected message from the shared memory.

9. (Original) The method of claim 1, wherein the interface is a shared memory, and wherein the providing comprises writing a reference pointer to the selected message to the shared memory.

10. (Original) The method of claim 9, wherein the reading comprises retrieving the reference pointer and retrieving the selected message stored at a memory location indicated by the reference pointer.

11. (Previously Presented) The method of claim 1, wherein the transmit opportunity has multiple periods, and wherein in a first period, only highest priority messages can be transmitted.

12. (Original) The method of claim 11, wherein in a second period, any priority message can be transmitted.

13. (Original) The method of claim 12, wherein a message of a given priority can be selected only if there are no messages of a higher priority waiting to be transmitted.

14. (Original) The method of claim 12, wherein a message of a given priority can be selected only if there are no transmission opportunities for messages of a higher priority.

15. (Original) The method of claim 12, wherein a message of a given priority can be selected only if there is insufficient time in the transmission opportunity for messages of higher priorities.

16. (Previously Presented) The method of claim 1, wherein the placing comprises putting the message into a priority queue assigned to enqueue messages of same assigned priority.

17. (Original) The method of claim 1, wherein the second selecting comprises choosing a message with an assigned priority level equal to that permitted in the transmission opportunity.

18. (Original) The method of claim 17, wherein the second selecting further comprises choosing a message with a transmit time shorter than the transmission opportunity.

19. (Previously Presented) A hierarchical scheduling system comprising:

a plurality of traffic queues, each traffic queue containing a plurality of message queues and a queue scheduler, wherein each traffic queue enqueues messages of a single traffic type, wherein each message queue is used to store messages from a single message flow and the queue scheduler orders the messages in the message queues according to a first scheduling algorithm;

a first scheduler coupled to each traffic queue, the first scheduler containing circuitry to select a message from one of the traffic queues based upon a first serving algorithm;

a plurality of priority queues coupled to the first scheduler, wherein each priority queue is used to store messages selected by the first scheduler according to a message's assigned priority level; and

a second scheduler coupled to each priority queue, the second scheduler containing circuitry to select a message from one of the priority queues according to a second serving algorithm.

20. (Original) The hierarchical scheduling system of claim 19, wherein the first scheduling algorithm enqueues messages based on their arrival time.

21. (Original) The hierarchical scheduling system of claim 20, wherein the first scheduling algorithm also enqueues messages based on a weighting value assigned to each message flow.

22. (Original) The hierarchical scheduling system of claim 19, wherein the first serving algorithm selects the message based upon a priority level assigned to each traffic queue.

23. (Original) The hierarchical scheduling system of claim 22, wherein the first serving algorithm selects the message based upon information regarding remaining bandwidth allocated for each traffic type.

24. (Original) The hierarchical scheduling system of claim 23, wherein information about the selected message is used to adjust the information about the remaining bandwidth allocation.

25. (Previously Presented) The hierarchical scheduling system of claim 19 further comprising an interface between the first scheduler and the plurality of priority queues, the interface to allow the exchange of information between the first scheduler and the plurality of priority queues.

26. (Original) The hierarchical scheduling system of claim 25, wherein the interface is a shared memory.

27. (Previously Presented) The hierarchical scheduling system of claim 19, wherein each priority queue can enqueue messages from different message flows with equal assigned priority levels.

28. (Previously Presented) The hierarchical scheduling system of claim 27, wherein each priority queue enqueues messages based on their arrival time.

29. (Original) The hierarchical scheduling system of claim 19, wherein the second serving algorithm selects the message based upon an assigned priority level.

30. (Original) The hierarchical scheduling system of claim 29, wherein the second serving algorithm selects the message based upon information about which message priority can be transmitted.

31. (Original) The hierarchical scheduling system of claim 30, wherein the second serving algorithm selects the message if there is sufficient time to transmit the message.

32. (Original) The hierarchical scheduling system of claim 31, wherein information about the selected message is used to adjust the information about remaining time to transmit messages.

33. (Original) The hierarchical scheduling system of claim 30, wherein information about the selected message is used to adjust the information about the message priority that can be transmitted.

34. (Previously Presented) The hierarchical scheduling system of claim 19, wherein messages selected by the second scheduler are provided to a transmitter to transmit to the messages intended destination.

35. (Previously Presented) A communications device comprising:

a host to process information, the host comprising

a plurality of traffic queues, each traffic queue containing a plurality of message queues and a queue scheduler, wherein a traffic queue enqueues messages of a single traffic type,

wherein each message queue is used to store messages from a single message flow and the queue scheduler orders the messages in the message queues according to a first scheduling algorithm;

a first scheduler coupled to each traffic queue, the first scheduler containing circuitry to select a message from one of the traffic queues based upon a first serving algorithm;

a station coupled to the host, the station to permit communications between the host and other devices, the station comprising

a plurality of priority queues coupled to the first scheduler, wherein each priority queue is used to store messages selected by the first scheduler according to a message's assigned priority level; and

a second scheduler coupled to each priority queue, the second scheduler containing circuitry to select a message from one of the priority queues according to a second serving algorithm.

36. (Original) The communications device of claim 35 further comprising an interface between the host and the station, the interface to permit an exchange of messages.

37. (Original) The communications device of claim 36, wherein the interface is a shared memory.

38. (Previously Presented) The communications device of claim 35, wherein the plurality of traffic queues is implemented in a memory in the host and the first scheduler is executing in a processor in the host.

39. (Original) The communications device of claim 35, wherein the plurality of priority queues is implemented in a firmware of the station and the second scheduler is executing in the firmware of the station.

40. (Original) The communications device of claim 35, wherein the station is a wireless network adapter.

41. (Original) The communications device of claim 40, wherein the wireless network adapter is IEEE 802.11e compliant.

42. (Original) The communications device of claim 35, wherein the station is a wired network adapter.